Complete Summary

GUIDELINE TITLE

Chronic hypertension in pregnancy.

BIBLIOGRAPHIC SOURCE(S)

American College of Obstetricians and Gynecologists (ACOG). Chronic hypertension in pregnancy. Washington (DC): American College of Obstetricians and Gynecologists (ACOG); 2001 Jul. 9 p. (ACOG practice bulletin; no. 29). [52 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Chronic hypertension in pregnancy:

- Mild chronic hypertension (blood pressure $\geq$140/90 mmHg)
- Severe chronic hypertension (blood pressure $\geq$180/110 mmHg)

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Cardiology
Internal Medicine
Obstetrics and Gynecology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

- To aid practitioners in making decisions about appropriate obstetric and gynecologic care
- To review the effects of chronic hypertension on pregnancy, to clarify the terminology and criteria used to define and diagnose it during pregnancy, and to review the available evidence for treatment options

TARGET POPULATION

Pregnant women with chronic hypertension

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis

1. Initial evaluation with specialized clinical tests during pregnancy or preconceptionally including electrocardiography, echocardiography, ophthalmologic examination, and renal ultrasonography to assess risks of hypertension during pregnancy
2. Adjunctive tests to evaluate for causes of secondary hypertension, including measurements of 24-hour urine vanillylmandelic acid, metanephrines, or unconjugated catecholamines; magnetic resonance imaging after the first trimester or computed tomography; Doppler flow studies or magnetic resonance angiography
3. Renal function tests such as serum creatinine, blood urea nitrogen, and 24-hour urine evaluation for total protein and creatinine clearance; liver function tests, hemoglobin/hematocrit evaluation, platelet count, and periodic measurement of urine protein and protein-creatinine ratio; and serum uric acid level in pregnant women with known essential hypertension

Management/Treatment

1. Methyldopa and labetalol as first-line antihypertensive therapy for pregnant women with severe hypertension
2. Fetal surveillance including baseline ultrasonography at 18-20 weeks of gestation, repeated ultrasonography at 28-32 weeks of gestation and monthly thereafter until delivery to monitor fetal growth when chronic hypertension is complicated by intrauterine growth restriction or preeclampsia

3. Considering delivery of all women with superimposed severe preeclampsia at or beyond 28 weeks of gestation and in women with mild superimposed preeclampsia at or beyond 37 weeks of gestation
4. Antihypertensive medication and magnesium sulfate in women with severe preeclampsia during the intrapartum period
5. Using clinicians with specialized training in obstetric anesthesia for regional anesthesia during labor and delivery

MAJOR OUTCOMES CONSIDERED

- Rate of small-for-gestational-age (SGA) infant, prematurity, perinatal mortality, neonatal morbidity, and placental abruption in pregnant women with chronic hypertension
- The benefits and potential adverse fetal effects of treatment of mild chronic hypertension during pregnancy

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The MEDLINE database, the Cochrane Library, and American College of Obstetricians and Gynecologists' (ACOG's) own internal resources and documents were used to conduct a literature search to locate relevant articles published between January 1985 and August 2000. The search was restricted to articles published in the English language. Priority was given to articles reporting results of original research, although review articles and commentaries also were consulted. Abstracts of research presented at symposia and scientific conferences were not considered adequate for inclusion in this document.

Guidelines published by organizations or institutions such as the National Institutes of Health and the American College of Obstetricians and Gynecologists were reviewed, and additional studies were located by reviewing bibliographies of identified articles.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Studies were reviewed and evaluated for quality according to the method outlined by the U.S. Preventive Services Task Force:

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

METHODS USED TO ANALYZE THE EVIDENCE

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Analysis of available evidence was given priority in formulating recommendations. When reliable research was not available, expert opinions from obstetrician-gynecologists were used. See also the "Rating Scheme for the Strength of Recommendations" field regarding Grade C recommendations.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Based on the highest level of evidence found in the data, recommendations are provided and graded according to the following categories:

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Practice Bulletins are validated by two internal clinical review panels composed of practicing obstetrician-gynecologists generalists and subspecialists. The final guidelines are also reviewed and approved by the American College of Obstetricians and Gynecologists (ACOG) Executive Board.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The grades of evidence (I-III) and levels of recommendations (A-C) are defined at the end of "Major Recommendations" field.

The following recommendation is based on good and consistent scientific evidence (Level A):

- Angiotensin-converting enzyme inhibitors are contraindicated during pregnancy and are associated with fetal and neonatal renal failure and death.

The following recommendations are based on limited or inconsistent scientific evidence (Level B):

- Antihypertensive therapy should be used for pregnant women with severe hypertension for maternal benefit.
- Methyldopa and labetalol are appropriate first-line antihypertensive therapies.
- Treatment of women with uncomplicated mild chronic hypertension is not beneficial because it does not improve perinatal outcome.
- The beta-blocker atenolol may be associated with growth restriction and is not recommended for use in pregnancy.

The following recommendations are based primarily on consensus and expert opinion (Level C):

- Women with chronic hypertension should be evaluated for potentially reversible etiologies, preferably prior to pregnancy.

- Women with long-standing hypertension should be evaluated for end-organ disease, including cardiomegaly, renal insufficiency, and retinopathy, preferably prior to pregnancy.
- When chronic hypertension is complicated by intrauterine growth restriction or preeclampsia, fetal surveillance is warranted.

Definitions:

Grades of Evidence

I Evidence obtained from at least one properly designed randomized controlled trial

II-1 Evidence obtained from well-designed controlled trials without randomization

II-2 Evidence obtained from well-designed cohort or case–control analytic studies, preferably from more than one center or research group

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments also could be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees

Levels of Recommendation

Level A — Recommendations are based on good and consistent scientific evidence.

Level B — Recommendations are based on limited or inconsistent scientific evidence.

Level C — Recommendations are based primarily on consensus and expert opinion.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- Improved understanding of the effects of chronic hypertension on pregnancy and the terminology and criteria used to define and diagnose chronic hypertension during pregnancy
- Appropriate management of chronic hypertension in pregnancy

POTENTIAL HARMS

Not stated

CONTRAINDICATIONS

CONTRAINDICATIONS

Angiotensin-converting enzyme (ACE) inhibitors are contraindicated during the second and third trimester of pregnancy.

QUALIFYING STATEMENTS

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These guidelines should not be construed as dictating an exclusive course of treatment or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to the institution or type of practice.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2001 Jul

GUIDELINE DEVELOPER(S)

American College of Obstetricians and Gynecologists - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Obstetricians and Gynecologists (ACOG)

GUIDELINE COMMITTEE

American College of Obstetricians and Gynecologists (ACOG) Committee on Practice Bulletins-Obstetrics

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Not stated

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: None available

Print copies: Available for purchase from the American College of Obstetricians and Gynecologists (ACOG) Distribution Center, PO Box 4500, Kearneysville, WV

25430-4500; telephone, 800-762-2264, ext. 192; e-mail: sales@acog.org. The ACOG Bookstore is available online at the ACOG Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on September 22, 2004. The information was verified by the guideline developer on December 9, 2004.

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